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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/523,829	02/08/2005	Shigeru Ashida	Q86138	3991

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EXAMINER	
NGUYEN, CHAU N	

ART UNIT	PAPER NUMBER
2835	

NOTIFICATION DATE	DELIVERY MODE
11/19/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/523,829	ASHIDA ET AL.	
	Examiner	Art Unit	
	Chau N. Nguyen	2835	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 September 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 4-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 4-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1, 4, 6-10, 14-16 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moore et al. (6,064,003) in view of Knapp et al. (4,521,064).

Moore et al. discloses an electrical connector (Figures 6-8) comprising a conductor (63) exposed (at 64) from a covering, a connection portion of the conductor connected to a connection portion of a terminal (70), a connector housing (66) receiving the terminal, an impedance control means (72) fixed on the connection portions of the conductor and the terminal, and a second covering (74) that covers a part of the covering, the impedance control means and a part of the connector housing (FIG. 8), wherein the impedance control means is a foam resin (re claims 1, 14 and 15). Moore et al. also discloses the foam element having strength to maintain a structure thereof (re claim 7), the foam element being molded to cover respective connection portions (re claim 10), the conductor and the terminal being connected by welding (col. 3, lines 45-48), and the foam resin filling the surrounding space defined by the connection portions and the second covering (Figure 8 shows the foam resin 72 filling the area below the cable 20, and col. 3, lines 52-54, discloses the foam resin 72 is injection molded over the joiner of the terminal, the conductor and the connector housing) (re claim 21). Claim 8 is a method counterpart of claim 1. Re claim 4, the foam resin can function as a capacitive capacitor since it comprises structure and material as claimed. Re claim 16, since the conductor and the terminal being connected together by welding, there would be a molten alloy layer at the connection portion.

Moore et al. does not disclose the foam resin being controlled to be approximate in impedance to the covering (re claim 9), wherein the foam resin has a foam ratio that is selected so that an impedance of the connection portions substantially match the impedance of the covering of the conductor (the foam ratio of the foam resin is 20% or more, see specification page 12, lines 5-7), nor the foam ratio of the foam element being greater than 0% and 80% or less (re claims 1, 6 and 8).

Knapp et al. discloses an electrical connector comprising a foam resin (50) which has a foam ratio of 35%-55%. It would have been obvious to one skilled in the art to provide the foam resin of Moore et al. to have an impedance being closer to impedance of the covering of the conductor, in other words to provide the foam resin of Moore et al. with a foam ratio of 35%-55% as taught by Knapp et al. to meet the specific use of the resulting device since lower ratio would reduce the moisture-proof qualities and higher ratio would reduce the compressibility of the material.

4. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moore et al. in view of Knapp et al. as applied to claim 1 above, and further in view of Hutchison (4,070,084).

Moore et al. and Knapp et al. disclose the invention substantially as claimed including the connection portions being located in the cavity of the connector housing. Moore et al. does not disclose the connector housing being made of a foamed resin. Hutchison discloses an electrical connector comprising a connector housing (15). Hutchison discloses that using foamed material for the connector housing would lower the dielectric constant. It would have been obvious to one skilled in the art to use foamed resin for the connector housing of Moore et al. to lower the dielectric constant around the connection portions as taught by Hutchison.

5. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moore et al. in view of Knapp et al. as applied to claim 8 above, and further in view of Urushibata et al. (5,057,650).

Moore et al. and Knapp et al. disclose the invention substantially as claimed except for the foam resin being formed into a predetermined shape to be fitted to respective connection portions. Urushibata et al. discloses an electrical connector comprising a predetermined shape (20) which is formed to be fitted to respective connection portions. It would have been obvious that instead of molding the foam element of Moore et al. to cover respective connection portions, one skilled in the

art would form the foam resin into a predetermined shape to be fitted to respective connection portions as taught by Urushibata et al. to eliminate the molding step at the connection time.

6. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moore et al. in view of Knapp et al. as applied to claim 8 above, and further in view of Bates (4,864,081).

Moore et al. and Knapp et al. disclose the invention substantially as claimed except for the foam resin being formed as a tape to be wound around the connection portions. Bates discloses an electrical connection comprising a foam tape (50) covering the connection portions. It would have been obvious that instead of molding to form the foam resin to cover the connection portions of Moore et al., one skilled in the art would use the foam tape as taught by Bates to wind around the connection portions since a preformed tape is much easier to apply at the connection time as taught by Bates and since winding a tape around an electrical connection is well-known in the art.

7. Claims 13 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beamenderfer et al. (4,834,674) in view of Knapp et al.

Beamenderfer et al. discloses an electrical connector (Figure 6) comprising a cable (2) which is comprised of an electrical wire (4) including a conductor exposed from a first covering, a drain wire (5) arrayed parallel to the electric wire, and a jacket (6) holding the electric wire and the drain wire, a connection terminal having a connection portion (10) connected to an end of the conductor, an earth terminal (7) having a connection portion connected to an end of the drain wire, a connector housing (8) receiving the connection terminal and the earth terminal, and a second covering (19) located around a resin (18, col. 5, lines 16-28). Beamenderfer et al. also discloses the conductor and the terminal being welded together.

Beamenderfer et al. does not specifically disclose (although it appears in Figure 6) the resin (18) being a foam resin having a foam ratio selected to substantially match the impedance of the covering of the conductor (the foam ratio of the foam element is 20% or more, see specification page 12, lines 5-7) and the foam resin being extruded to cover the connection.

Knapp et al. discloses an electrical connector comprising a foam resin (50) located around connection portions, wherein the foam resin has a foam ratio of 20% or more. It would have been obvious to one skilled in the art to use foam resin having a foam ratio of 20% or more for the resin (18) of Beamenderfer et al.

(impedance of the foam element is closer to impedance of the covering of the conductor), as taught by Knapp et al. to meet the specific use of the resulting device since it is taught by Knapp et al. that lower ratio would reduce the moisture-proof qualities and higher ratio would reduce the compressibility of the material.

It would have been obvious to one skilled in the art to provide the foam resin (18) of Beamenderfer et al. by extrusion since this is a well-known method in the art for being used to form coverings or housings.

8. Claims 18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ichikawa et al. (5,780,774) in view of Moore et al. and Knapp et al.

Ichikawa et al. discloses a method of fabricating a connector (Figure 3), comprising welding a terminal and a conductor to each other for connection, forming a pair of resin members preliminarily formed into shapes which conform to an upper half and a lower half shape of connection portions, and fitting said pair of resin members around the connection portions.

Ichikawa et al. does not disclose the pair of resin members being made of foam resin or molding a resin around the foam resin members. Moore et al. discloses an electrical connector comprising foam resin member (72) covering the connection portions of terminal and conductor and a resin (74) around the foam

member (72). It would have been obvious to one skilled in the art to use foam resin as taught by Moore et al. for the resin members of Ichikawa et al. to provide a water-tight seal over the connection portions. It would also have been obvious to one skilled in the art to mold a resin (74) as taught by Moore et al. around the pair of foam resin members of Ichikawa et al. to provide a positive seal and since molding is a well-known method for being used to form a resin cover around another member.

Re claim 20, the modified connector of Ichikawa et al. discloses the invention substantially as claimed except for the foam element having a predetermined foam ratio selected to substantially match the impedance of the covering of the conductor (the foam ratio of the foam element is 20% or more, see specification page 12, lines 5-7). Knapp et al. discloses an electrical connector comprising a foam element (50) which has a foam ratio of greater than 20%. It would have been obvious to one skilled in the art to use foam resin having a foam ratio of 20% or more for the covering members of Ichikawa et al. (impedance of the foam element substantially matches to impedance of the covering of the conductor), as taught by Knapp et al. to meet the specific use of the resulting device since it is taught by Knapp et al. that lower ratio would reduce the moisture-proof qualities and higher ratio would reduce the compressibility of the material.

9. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ichikawa et al. in view of Bates and Knapp et al.

Ichikawa et al. discloses an electrical connector, comprising welding a terminal to a conductor and molding a resin (Figures 3-4) for a connector housing around the terminal and the conductor exposed from a covering. Ichikawa et al. does not disclose preparing a foam resin tape to be wound around the connection portions before molding the resin, wherein the foam resin tape has a predetermined foam ratio selected to substantially match the impedance of the covering of the conductor (the foam ratio of the foam element is 20% or more, see specification page 12, lines 5-7). Bates discloses an electrical connector comprising a foam resin tape covering a connection portion between a terminal and a conductor. It would have been obvious to one skilled in the art to use the foam resin tape as taught by Bates to wind around the connection portion of Ichikawa et al. to further protect the connection portion and since winding a tape around an electrical connection is well-known in the art. Knapp et al. discloses an electrical connector comprising a foam element (50) which has a foam ratio of greater than 20%. It would have been obvious to one skilled in the art to use foam resin having a foam ratio of 20% or more for the modified resin tape of Ichikawa et al. (impedance of

the foam element substantially matches to impedance of the covering of the conductor), as taught by Knapp et al. to meet the specific use of the resulting device since it is taught by Knapp et al. that lower ratio would reduce the moisture-proof qualities and higher ratio would reduce the compressibility of the material.

Response to Arguments

10. Applicant's arguments filed 9/30/2010 have been fully considered but they are not persuasive.

Applicant argues that the examiner is using classic hindsight reconstruction because the proposed motivating factor- "to have an impedance being closer to the impedance of the covering of the conductor"- is found nowhere in any of the prior art references cited by the examiner.

Examiner disagrees. Examiner does NOT rely on the applicant's own disclosure to provide a reasoning for combining the references. Claim 1 of the present invention broadly recites "the impedance control means being a foam resin that is selected so that an impedance of the connection portions substantially matches the impedance of the covering of the conductor". To understand such claimed terminology and to understand what ratio of the foam resin required performing the claimed function, examiner turns to the applicant's disclosure to

find support for the claimed terminology. As supported by the applicant's specification, in order for the impedance of the connection portion matching with the covering of the conductor, the foam resin should have a foam ratio of at least 20%, page 12, lines 5-11. Moore et al. discloses the foam element 72 but lacks the foam ratio. Knapp et al. teaches a connector assembly comprising a foam element. Knapp et al. also teaches that the foam element should have a foam ratio of 20% or more to provide a balance between moisture-proof qualities and the compressibility of the material. In the rejection, examiner then states that it would have been obvious to one skilled in the art to provide the foam element of Moore et al. to have a foam ratio greater than 20% as taught by Knapp et al. to meet the specific use of the resulting device since lower ratio would reduce the moisture-proof qualities and higher ratio would reduce the compressibility of the material.

In conclusion, the examiner's reasoning to combine the references does NOT come from applicant's own disclosure.

Applicant then argues that the foam resin (72) of Moore is not fixed on but separately disposed from terminals (70) and conductors (63) by an airspace that has a low permittivity. Thus, the foam resin 72 of Moore is unlikely to contribute to an impedance matching. Examiner disagrees. Applicant has not provided any evidence to support the position that an airspace at the connection portions

between the terminals 70 and conductors 63 because Figures 6 and 7 of Moore show an intermediate steps of forming the assembly. Moore, in fact, in Figures 8 and 9 teaches that the foam resin 72 is provided around (top and bottom) the connection portions between the terminals and conductors. Moore also discloses that the foam resin 72 is molded over the joiner of the terminals 70 and conductors 63 (col. 3, lines 50-52). Applicant, likewise, argues that the seal 50 of Knapp is not fixed on but separated from contacts. Examiner disagrees. Knapp is used only to support the position that foam ratio is selected for a foam resin, in a connector assembly, to meet the desired properties of the latter, therefore Knapp does not need to disclose the foam resin being fixed from terminals and conductors.

In response to applicant's argument that just like Moore and Knapp, Hutchison does not teach or suggest "a foam ratio selected to substantially match the impedance of the connection portion with the covering of the conductor", the Hutchison reference is relied upon only to support the position of using foam resin for the connector housing to lower the dielectric constant around the connection portion. Therefore, Hutchison doesn't have to disclose a foam ratio selected to substantially match the impedance of the connection portion with the covering of the conductor.

In response to applicant's argument that Urushibata fails to contemplate any impedance values, the Urushibata reference is relied upon to support the position of forming a connection covering into a predetermined shape before the connection takes place. Therefore, Urushibata does not have to disclose a foam ratio selected to substantially match the impedance of the connection portion with the covering of the conductor.

In response to applicant's argument that Bates fails to contemplate any impedance values, the Bates reference is relied upon only to support the position of forming a foam element into a tape which is wound around the connection portion. Accordingly, Bates does not have to disclose a foam ratio selected to substantially match the impedance of the connection portion with the covering of the conductor.

In response to applicant's argument that the combination of Beamenderfer and Knapp fails to teach "a foam ratio selected to substantially match the impedance of the connection portion with the covering of the conductor", the fact that the modified connector assembly of Beamenderfer comprises, along with other features, a foam element including a foam resin and having a foam ratio greater than 20% (taught by Knapp), the physical properties as claimed are disclosed in the modified connector assembly of Beamenderfer.

Regarding the rejection of claims 18-20, applicant alleges that Knapp fails to teach or suggest a water tight seal, and both Ichikawa and Bates are silent with regard to any foam element or matching impedance. Examiner disagrees because Knapp does teach the seal 50 with a selected foam ratio such that the seal is provided with a balance between moisture-proof quality and compressibility. It has been held that the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened

statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chau N. Nguyen whose telephone number is 571-272-1980. The examiner can normally be reached on Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jinhee J. Lee can be reached on 571-272-1977. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Chau N Nguyen/
Chau N Nguyen
Primary Examiner
Art Unit 2835